

REMARKS/ARGUMENTS

This Amendment is in response to the Office Action dated February 8, 2005. Claims 1, 3, 5, 7 and 9-15 remain pending in the present application. Claims 1, 3, 5, and 7 are rejected. Claims 1 and 5 have been amended, claims 2-4, 6, and 8-14 have been withdrawn, and claims 9-15 have been added by this amendment.

The 102 Rejections

The Examiner rejected claims 1, 3, 5, and 7 under 35 U.S.C. 102(b) as being anticipated by Kitamura (U.S. Patent No. 5,844,275) (“Kitamura”). Applicant has amended claims 1 and 5 to point out the patentability of these claims.

Claim 1 recites a lateral double-diffused metal oxide semiconductor (LDMOS) device including a gate region, a body region under the gate region, an enhanced drift region under the gate region, where the enhanced drift region purposely overlaps the body region, a drain region within the enhanced drift region such that the drift region is under the entire drain region (as described in Fig. 5 and page 6, lines 19-20 of Applicant’s specification, for example), and a layer, well or substrate under the enhanced drift region and the body region, where the layer, well or substrate has the same conductivity type as the enhanced drift region (as described in Figs. 4 and 5 and on page 4, lines 19-23, and page 5, lines 1-6 of Applicant’s specification).

In contrast, Kitamura discloses a lateral MOSFET semiconductor device with a trench, where a drain drift region 4 is provided above a well region 2 (Figs. 1, 3B) and where a drain region 11 is provided over the surface layer on one side of the trench.

This is not the same as Applicant’s claim 1. Applicant recites that a drain region is

positioned within an enhanced drift region such that the enhanced drift region is under the entire drain region. In addition, Applicant's claim 1 recites that a layer, well, or substrate is under the enhanced drift region and the body region, where the layer, well or substrate has the same conductivity type as the enhanced drift region. In contrast, Fig. 1 of Kitamura, for example, shows a drain region 11 that clearly extends outside the drift region 4 and contacts the well region 2, so that the drain region 11 is not within the drift region 4 nor the drift region 4 under the entire drain region 11. Also, Kitamura discloses in Fig. 3B, for example, that a well region 2 is provided below the drift region 4 and has the opposite conductivity type (p-type) to the drift region 4 (n-type), not the same type as recited in claim 1. Kitamura does not disclose or suggest Applicant's invention of a device having all the recited elements, including a drift region overlapping a body region, a drain region within a drift region such that the drift region is below the entire drain region, and a layer, well, or substrate under the drift region which has the same conductivity type as the drift region. Claim 1 is therefore believed to be patentable over Kitamura.

Claim 5 recites an LDMOS device similar to claim 1 and is believed patentable for at least similar reasons as claim 1. Applicant therefore respectfully requests that the rejection of claims 1 and 5 under 35 U.S.C. 102(b) be withdrawn. Claim 7 is dependent on claim 5 and is patentable for at least the same reasons as claim 5.

New Claims

New claims 9-15, dependent from claims 1 and 5, have been added by this amendment and are believed patentable for at least the same reasons as their respective parent claims and for additional reasons. Claim 9 recites that the enhanced drift region purposely overlaps the lateral tail

of the body region, similar to claim 7. Claims 10-11 and 13-14 recite that the conductivity types of the drift region and layer, well or substrate are N-type or P-type, as shown in Figs. 4 and 5 and/or described on page 7, lines 10-11 of Applicant's specification.

Claims 12 and 15 recite that the layer, well, or substrate is an epitaxial layer, and that the device further comprises a buried layer provided under the epitaxial layer and above a substrate, the buried layer having the conductivity type of the epitaxial layer and a different conductivity type than the substrate. This is disclosed in Figs. 4 and 5 and on page 5, lines 7-14 of Applicant's specification. Kitamura does not disclose or suggest such a buried layer.

The new claims are thus believed to be patentable over Kitamura for at least the same reasons as their parent claims, and for additional reasons.

In view of the foregoing, Applicant submits that claims 1, 5, 7, and 9-15 are patentable, and respectfully requests reconsideration and allowance of the claims as now presented.

Applicants' attorney believes this application in condition for allowance. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

June 8, 2005

Date

Respectfully submitted,
SAWYER LAW GROUP LLP


Stephen G. Sullivan
Attorney for Applicant(s)
Reg. No. 38,329
(650) 493-4540